

IN THE CLAIMS:

1 1. Cancelled

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1 3. (Previously Presented) The fuel as defined in claim 4, wherein said neat methanol
2 comprises between about 90 to 100 per cent by weight of the total composition of the fuel
3 substance.

1 4. (Previously Presented) A fuel for use in a fuel cell, comprising:

2 (A) a carbonaceous fuel substance wherein said carbonaceous fuel substance is
3 substantially comprised of neat methanol; and

4 (B) a thickening substance that imparts viscosity to the fuel substance, thereby
5 forming a gel fuel, wherein said thickening substance is substantially
6 comprised of a hydrophobically modified cross-linked polyacrylate poly-
7 mer rheology modifier.

1 5. (Previously Presented) The fuel as defined in claim 4, wherein said thickening
2 substance comprises about 2 per cent by weight of the total composition of the fuel sub-
3 stance.

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1 9. (Previously Presented) The fuel as defined in claim 4 in which the gel fuel has a
2 viscosity of between about 1000 to 48,000 mPa s.

1 10. (Previously Presented) The fuel as defined in claim 4, further comprising safety
2 enhancing additives.

1 11. (Original) The fuel as defined in claim 10 wherein said safety-enhancing addi-
2 tives are selected from the group consisting of colorants, bitters, flame retardants.

1 12. (Previously Presented) The fuel as defined in claim 4, further comprising poly-
2 meric additives.

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1 14. (Previously Presented) A fuel cartridge for use with a fuel cell, the cartridge com-
2 prising:

3 (A) a compartment for holding a fuel suspended in a gel; and

4 (B) a fuel vapor permeable layer "FVPL" forming one aspect of said com-
5 partment, said FVPL being permeable to a fuel substance that is released
6 out of said gel, and said aspect of said compartment being coupled with
7 said fuel cell in such a manner that the fuel travels through said FVPL into
8 said fuel cell, wherein said FVPL is substantially comprised of a highly
9 selective monolithic material having selectivity between fuel substance

10 and water, such that said fuel substance can travel through said monolithic
11 material to said fuel cell and water is substantially resisted from traveling
12 from said fuel cell into said fuel cartridge.

1 15. (Original) The fuel cartridge as defined in claim 14 further comprising multiple
2 FVPLs, at least one of which is said highly selective material.

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1 20. (Previously Presented) A method of supplying fuel to a fuel cell, the method com-
2 prising the steps of:

- 3 (A) providing a fuel substance suspended within a gel such that when contacting
4 air, fuel is evaporated out of said gel;
- 5 (B) directing said evaporated fuel substance into a fuel cell using a fuel vapor
6 permeable layer “FVPL” coupled to a fuel cell which FVPL allows fuel sub-
7 stance to pass through it into said fuel cell;
- 8 (C) providing as said fuel substance neat methanol;
- 9 (D) mixing a thickening substance into said neat methanol;
- 10 (E) adding a pH balancing substance to said neat methanol mixture to form a gel
11 fuel;
- 12 (F) placing said gel fuel in a cartridge that has at least one FVPL having a metha-
13 nol permeable wall; and

14 (G) attaching said cartridge to a fuel cell with said methanol permeable wall con-
15 tiguous to an anode aspect of said fuel cell to thereby direct said evaporated
16 fuel substance into the fuel cell.

1 21. (Original) The method as defined in claim 20 including the further step of reconsti-
2 tuting the gel fuel by adding additional liquid fuel.

1 22. (Previously Presented) A direct oxidation fuel cell system, comprising:

2 (A) a direct oxidation fuel cell including:

- 3 (i) a membrane electrolyte intimately interfacing with a catalyst layer
4 along each of membrane's major surfaces, being a catalyzed mem-
5 brane electrolyte, having an anode aspect and a cathode aspect;
6 (ii) an effective water supply from cathode to anode within said fuel cell,
7 so that water management in said fuel cell is achieved without water
8 collection from the cathode and/or water transport from cathode to an-
9 ode external to the active volume of the fuel cell;

10 (B) a fuel supply cartridge having means for removably attaching said cartridge to
11 said fuel cell, including:

- 12 (i) a compartment for holding a fuel substance suspended in a gel; and
13 (ii) a fuel vapor permeable layer "FVPL" forming one aspect of said com-
14 partment, said FVPL being permeable to the fuel substance that is re-
15 leased out of said gel, and said aspect of said compartment being cou-
16 pled with said fuel cell in such a manner that the fuel travels through
17 said FVPL into said fuel cell; and

18 (C) an electrical coupling across said fuel cell for supplying power to an applica-
19 tion device.

- 1 23. (Original) A fueling device for a fuel cell system, comprising:
- 2 (A) an internal fuel compartment that contains a gel fuel coupled to at least one
- 3 fuel cell in the fuel cell system for delivering a fuel substance that evaporates
- 4 out of said gel fuel; and
- 5 (B) a replacement container coupled to said internal fuel compartment for refuel-
- 6 ing the gel fuel in said compartment.
- 1 24. (Original) The fueling device as defined in claim 23 wherein said fuel cell system
- 2 and said internal fuel compartment are disposed within an application device.
- 1 25. (Original) The fueling device as defined in claim 23 wherein said replacement con-
- 2 tainer houses a gel fuel for replacing gel fuel in said internal fuel compartment.
- 1 26. (Original) The fueling device as defined in claim 23 wherein said replacement con-
- 2 tainer houses a liquid fuel for delivery to said internal fuel compartment to reconstitute the
- 3 gel fuel that supplies said fuel cell system.
- 1 27. (Previously Presented) The fuel as defined in claim 4, further comprising an alkaline
- 2 pH-modifying substance.
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- 1 29. (Previously Presented) A fuel cartridge for use with a fuel cell, the cartridge compris-
2 ing:
- 3 (A) means for removably attaching the cartridge from an associated fuel cell;
- 4 (B) a compartment for holding a fuel suspended in a gel; and
- 5 (C) a fuel vapor permeable layer "FVPL" forming one aspect of said compart-
6 ment, said FVPL being permeable to a fuel substance that is released out of
7 said gel, and said aspect of said compartment being coupled with said fuel cell
8 in such a manner that the fuel travels through said FVPL into said fuel cell.